REMARKS

Applicant respectfully requests further examination and reconsideration in view of the amendments above and the remarks set forth below. Claims 7-22 and 24-27 were previously pending in this application. In the Office Action, Claims 7-20 and 24-27 are rejected and Claims 21 and 22 are objected to. By the above amendment, Claims 7, 11, 17, and 27 are amended. Accordingly, Claims 7-22 and 24-27 are currently pending.

Claim Rejections under 35 U.S.C. § 103

Within the Office Action, Claims 7-17, 20, and 24-27 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,577,115 issued to Deutsch et al. (hereinafter referred to as "Deutsch") in view of U.S. Patent No. 5,400,397 issued to Ryu. Within the Office Action, Claims 18 and 19 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Deutsch in view of Ryu and further in view of U.S. Patent No. 5,555,300 issued to Gutzmer The Applicant respectfully traverses these rejections.

The present invention interfaces a telephony appliance to a telephone switching system such that voice and overhead signals are sent between the two. In order to provide communications that can be understood by the telephone switching system, the interface device learns the characteristics of the telephone switching device during a pre-configuration process. These characteristics are compared to a database of communications protocols in order to find a match to a communications protocol specific to the telephone switching system. In this way, the matched communications protocol is a device-specific protocol, that is, specific to the telephone switching system.

The database stores multiple sets of manufacturer specific communications protocols. Each communications protocol includes a plurality of sets of conversion parameters appropriate for telephone switching systems produced by various different manufactures. Each set of parameters includes information relating to an appropriate format and synchronization of the

digital samples, decompression and decoding of the digital samples, appropriate compression and encoding of the analog signals into digital signals, generation of commands to the telephone switching system (PBX 102) and recognition of commands from the telephone switching system.

During the pre-configuration process, once the communications protocol of the telephone switching system is determined, this communications protocol is loaded into one or more appropriate control circuits, such as the analog line interface 210 or the digital line transceiver 212. Once loaded with the appropriate communications protocol, the control circuit is capable of properly formatting the voice signals and overhead control signals sent to the telephone switching system, and the control circuit is capable of interpreting encoded voice signals and/or overhead control signals from telephone switching system. In this manner, the interface device of the present invention is dynamically programmed according to the determined communications protocol of the telephone switching system.

Additionally, the interface device is also configured to similarly determine a communications protocol of each telephony appliance attached thereto. The programmed interface device then translates between both the determined protocol of the telephony appliance and the determined protocol of the telephone switching system.

In contrast, Deutsch teaches an interface adapter 400 that merely re-configures a routing path(either path 44, 45, or 50) according to measured power signals (lines 52-1 to 52-8) received from an external network interface 14. An interface recognition switch 40 compares signals on lines 52-1 through 52-8 to known signals for a T interface circuit 47, a U interface circuit 46 and an analog circuit 29. This comparison determines the route for signals carried on lines 52-1 to 52-8 (Deutsch, col. 5, lines 2-6). In particular, a switch matrix 43 within the interface recognition switch 40 is configured to route the signals via path 44, 45, or 50 (Deutsch, col. 5, lines 62-64; col. 6, lines 11-14; and col. 6, lines 35-38). The routing is determined by comparing measured power signals on each of the lines 52-1 to 52-8 and comparing those results to known characteristics by a microprocessor 41.

Ryu is cited for teaching an automatic branch exchange 100 that couples to a two-wire

digital key telephone set, a four-wire analog key telephone set, and a standard two-wire telephone set. Ryu is not cited for identifying a communications protocol of a telephone switching system.

Within the Response to Arguments section of the Office Action, it is stated that the switch matrix 43 of Deutsch corresponds to a dynamically programmed control circuit because it dynamically changes the active output loop 44, 45, and 50 in response to the type of protocol used by the telephone switching network 15 detected by the microprocessor 41. In other words, the switch matrix 43 functions to change a routing path. There is no hint, teaching or suggestion within Deutsch that indicates the switch matrix 43 is programmed according to conversion parameters, where the conversion parameters are specifically selected according to the type of protocol used by the telephone switching network 15. As is well known, conversion parameters are used to convert a signal from one format to another format. The switch matrix 43 of Deutsch does not perform any conversion operation on the signals, the switch matrix 43 merely re-routes the existing signal unchanged. Each of the independent Claims 1, 11, 17, and 27 are amended to specify that the control circuit is programmed according to conversion parameters associated with the identified communications protocol of the telephone switching system.

It is also stated in the Response to Arguments of the Office Action that the Claims 17 and 27 do not recite the function of the control circuits within the signal paths, and as such, the switch matrix 43 of Deutsch is the same as the claimed dynamically programmed control circuit. By the above amendments, the independent Claim 17 is amended to specify that the programmed first control circuit or the programmed second control circuit <u>translates the voice signals</u> passed between the telephone switching system and the telephony appliance, where the programmed first and second control circuits are programmed according to the determined conversion parameters. Similarly, the independent Claim 27 is amended to specify that <u>translating</u> a communication according to the communication protocol of the telephone switching system <u>is</u> <u>performed by the programmed control circuit</u>. Within the Office Action, it is stated that the

CODEC 20 of Deutsch performs an analog to digital translation. However, the Examiner makes the analogy between the claimed programmed control circuit and the switch matrix 43 of Deutsch. As discussed above, the switch matrix 43 of Deutsch does not translate the voice signal. Therefore, Deutsch does not teach the claimed limitation of the programmed control circuit performing the translation. Ryu is not cited for teaching the claimed translation function.

The amended independent Claim 7 is directed to an interface apparatus for interfacing a telephony appliance to a telephone switching system. The interface apparatus comprises a signal path through the apparatus for communicating signals between the telephony appliance and the telephone switching system, means for identifying a first communication protocol utilized by the telephony appliance from among a plurality of communication protocols and for configuring the signal path according to the first communication protocol, wherein configuring the signal path includes dynamically programming a control circuit within the signal path according to the identified first communication protocol, and means for identifying a second communication protocol utilized by the telephone switching system from among the plurality of communication protocols and for configuring the signal path according to the second communication protocol, wherein configuring the signal path according to the second communication protocol includes programming the control circuit according to conversion parameters associated with the identified second communication protocol, further wherein the first communication protocol and the second communication protocol must first be identified before the telephony appliance and the telephone switching system begin communicating with one another. As mentioned above, neither Deutsch, Ryu, nor their combination teach dynamically programming a control circuit according to conversion parameters specific to the identified communications protocol of a telephone switching system and according to the identified communications protocol of the telephony appliance. For at least these reasons, the amended independent Claim 7 is allowable over the teachings of Deutsch, Ryu and their combination.

Claims 8-10 depend upon the amended independent Claim 7. As discussed above, the

amended independent Claim 7 is allowable over the teachings of Deutsch, Ryu and their combination. Accordingly, Claims 8-10 are allowable as being dependent upon an allowable base claim, and are now in condition for allowance.

The amended independent Claim 11 is directed to a method of interfacing a telephony appliance to a telephone switching system. The method comprises the step of providing a signal path for communicating signals between the telephony appliance and the telephone switching system. The method also comprises the step of identifying a first communication protocol utilized by the telephony appliance from among a plurality of communication protocols. The method also comprises the step of identifying a second communication protocol utilized by the telephone switching system from among the plurality of communication protocols, wherein the first communication protocol and the second communication protocol must first be identified before the telephony appliance and the telephone switching system begin communicating with one another. The method further comprises the step of configuring the signal path according to the protocol utilized by the telephony appliance and according to the protocol utilized by the telephone switching system, wherein configuring the signal path includes dynamically programming a control circuit within the signal path according to the identified first communication protocol and according to conversion parameters associated with the identified second communication protocol. As mentioned above, neither Deutsch, Ryu, nor their combination teach dynamically programming a control circuit according to conversion parameters specific to the identified communications protocol of a telephone switching system and according to the identified communications protocol of the telephony appliance. For at least these reasons, the amended independent Claim 11 is allowable over the teachings of Deutsch, Ryu and their combination.

Claims 12-16 depend upon the amended independent Claim 11. As discussed above, the amended independent Claim 11 is allowable over the teachings of Deutsch, Ryu and their combination. Accordingly, Claims 12-16 are allowable as being dependent upon an allowable base claim, and are now in condition for allowance.

The amended independent Claim 17 is directed to a method of interfacing a telephony appliance to a telephone switching system. The method comprises the step of determining whether the telephone switching system communicates voice signals as digital samples or as analog signals. The method also comprises the step of determining whether the telephony appliance communicates voice signals as digital samples or as analog signals. The method also comprises activating a first signal path when the telephone system communicates voice signals as digital samples, the first signal path for communicating the voice signals between the telephony appliance and the telephone switching system wherein the first signal path includes a converter for converting the digital samples into an analog signal. The method also comprises the step of activating a second signal path when the telephone system communicates voice signals in analog format, the second signal path for communicating the voice signals between the telephony appliance and the telephone switching system wherein the second signal path includes analog signal processing circuits. The method further comprises the steps of identifying a first communication protocol utilized by the telephone switching system, wherein the identified first communication protocol includes associated conversion parameters which are used to dynamically program a first control circuit within the first signal path or a second control circuit within the second signal path such that the programmed first control circuit or the programmed second control circuit translates the voice signals passed between the telephone switching system and the telephony appliance, and identifying a second communication protocol utilized by the telephony appliance, wherein the first communication protocol and the second communication protocol must first be identified before the telephony appliance and the telephone switching system begin communicating with one another. As mentioned above, neither Deutsch, Ryu, nor their combination teach dynamically programming a control circuit according to conversion parameters specific to the identified communications protocol of a telephone switching system and according to the identified communications protocol of the telephony appliance. Further, neither Deutsch, Ryu, nor their combination teach translating a communication signal passed between the telephone switching system and the telephony appliance by using the programmed

control circuit. For at least these reasons, the amended independent Claim 17 is allowable over the teachings of Deutsch, Ryu and their combination.

Claims 18-22 and 24-26 depend upon the amended independent Claim 17. As discussed above, the amended independent Claim 17 is allowable over the teachings of Deutsch, Ryu and their combination. Accordingly, Claims 18-22 and 24-26 are allowable as being dependent upon an allowable base claim, and are now in condition for allowance.
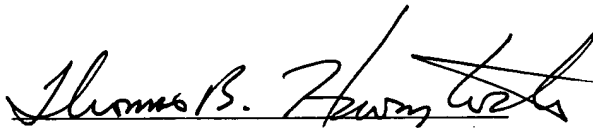
The amended independent Claim 27 is directed to a method of interfacing a telephony appliance to a telephone switching system. The method comprises the step of determining a first communication protocol of the telephone switching system. The method also comprises the step of determining a second communication protocol of the telephony appliance, wherein the first communication protocol and the second communication protocol must first be identified before the telephony appliance and the telephone switching system begin communicating with one another. The method also comprises the step of dynamically programming a control circuit according to conversion parameters associated with the determined first communication protocol. The method further comprises the step of translating a communication according to the first communication protocol of the telephone switching system using the programmed control circuit and further according to the second communication protocol of the telephony appliance. As mentioned above, neither Deutsch, Ryu, nor their combination teach dynamically programming a control circuit according to conversion parameters specific to the identified communications protocol of a telephone switching system and according to the identified communications protocol of the telephony appliance. Further, neither Deutsch, Ryu, nor their combination teach translating a communication signal passed between the telephone switching system and the telephony appliance by using the programmed control circuit. For at least these reasons, the amended independent Claim 27 is allowable over the teachings of Deutsch, Ryu and their combination.

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For the reasons given above, the Applicant respectfully submits that Claims 7-22 and 24-27 are now in a condition for allowance, and allowance at an early date would be appreciated. Should the Examiner have any questions or comments, he is encouraged to call the undersigned at (408) 530-9700 to discuss the same so that any outstanding issues can be expeditiously resolved.

Respectfully submitted,

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